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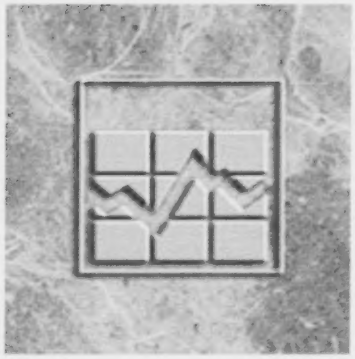
The Impact of Involuntary Breaks in Employment and Level of Education on the Timing of Retirement



by Yves Carrière et Diane Galarneau

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.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0[s]	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
[p]	preliminary
[r]	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
[e]	use with caution
F	too unreliable to be published
*	significantly different from reference category ($p < 0.05$)

The impact of involuntary breaks in employment and level of education on the timing of retirement

Yves Carrière and Diane Galarneau

Despite a stagnation in the average retirement age, there has been a significant delay in retirement since 1997, according to a recent article (Carrière and Galarneau, 2011). In 2008, a 50-year-old Canadian could expect to remain in the labour market for about 16 years, up from 13 years in 1997. This delay promotes a better balance between increased longevity and length of retirement. As long as workers are healthy enough to remain active, and jobs are available, delayed retirements could facilitate the transfer of knowledge and human capital, lessen the economic shock of aging and benefit workers who are ill-prepared financially for retirement (Burnioux et al., 2004; Expert Panel on Older Workers, 2008; Denton and Spencer, 2009; Mintz, 2009; Hering and Klassen, 2010; Hicks, 2011, 2012).

In our 2011 article, we used the concept of 'expected working life', which is derived in much the same way as life expectancy (Bélanger and Larrivée, 1992; Denton, Feaver and Spencer, 2009). The main difference between the two concepts is that, in addition to deaths, expected working life includes job interruptions due to retirements, as measured by the Labour Force Survey (LFS) from 1997 to 2010.

That article pointed to a possible major change in Canadians' retirement behaviour. However, it took into account only those retirements reported by LFS respondents. What would happen to the delayed retirement estimate if we included not only these 'voluntary' retirements, but also employment exits likely to push workers toward retirement?

When certain events, such as a layoff, illness, disability or caring for a loved one, occur late in workers' careers, they are often prompted to leave the labour force permanently and take what may be called 'involuntary' retirement—early retirement, but not by preference (Chan and Stevens, 1999; Chan and Stevens, 2002; Neil and Schirle, 2007; Brzozowski and Crossley, 2010; Finnie and Gray, 2011; Baldwin, 2011). Taking these retirements into account will reduce expected working life. In this article, using certain assumptions (see *Selection criteria for non-voluntary retirements below*), we assess the impact of these events on expected working life.

The probability of losing or finding a job is partly related to workers' socioeconomic characteristics (Bernard and Galarneau, 2010; Morissette et al., 2007). One of these characteristics is education, which seems to be an important factor often associated with a certain degree of skill and with certain types of jobs. It is also closely associated with income and wealth, which are important factors in deciding whether to retire. Consequently, the relationship between expected working life and level of schooling will also be examined.

Indeed, whether retirement is voluntary or not, the effect that a higher level of schooling has on the timing of retirement is unclear. On one hand, one might assume that more highly educated workers would further delay their retirement because on average they are in better health, have jobs that are less physically demanding, and are in industries where schedules and working conditions are more flexible. On the other hand, more highly educated workers often have higher employment earnings and more wealth than less educated workers, and are more likely to be covered by a pension plan. This wealth effect could actually encourage them to retire earlier.[1]

Level of schooling also seems to be correlated with life expectancy, as less educated workers have a shorter life expectancy (Wilkins et al., 2008). Thus, less educated workers with an equal expected working life may live fewer years after retirement. Accordingly, we will also study post-retirement life expectancy by level of schooling.

Another interesting facet of delayed retirement is the value of those years in hours. Could the effect of the three-year retirement delay since the mid-1990s be partly weakened by a decline in average weekly hours? This question is important because of the effect that a decline in hours due to aging could have on economic growth. To answer it, we convert expected working life into full-time equivalents (FTEs) and compare the two measures overall and by level of schooling.

1 Other characteristics such as health status, marital status, unionized status, immigrant status, being self-employed or an employee, and seniority are also likely to affect the timing of retirement (Schellenberg and Ostrovsky, 2008). The calculation of expected working life does not lend itself to all these characteristics, since some are sure to change over time, while level of schooling has the advantage of remaining essentially unchanged after 50 years.

Selection criteria for non-voluntary retirements

In this article, we examine the impact of certain factors in prompting workers to retire. Using the LFS question on the reason for stopping work, we can select employment exits associated with economic conditions, illness, disability or even personal and family responsibilities. However, we have no way of knowing whether those employment exits actually lead to retirement. We must therefore establish some criteria.

Before 1997, the LFS code for 'layoffs' also captured a large number of exits from seasonal, temporary and casual employment. Temporary and casual employment exits may be associated with economic conditions. However, it is not advisable to treat seasonal employment exits as retirements. To exclude them, the series on non-voluntary retirements was started in 1997. Employment exits for economic reasons therefore include exits from temporary and casual jobs and layoffs due to a company moving or going out of business or due to economic factors.

Even though women are likely to retire earlier (Schellenberg and Ostrovsky, 2008), the same criteria were applied for both sexes. This ensures that we do not obtain results that are attributable to the initial assumptions. Moreover, gender does not appear to have a significant impact on the probability of retiring when one's health deteriorates (Schirle, 2010).

Various criteria were tested[2]. Since few people retire voluntarily before age 55, the number of involuntary retirements before 55 was set at 0. To be considered retired, people had to be out of the labour force, not looking for work, unavailable for work, not wanting to work and not expecting to be called back. Unemployed people could not be treated as retired. The criteria, which were kept constant over time, are as follows:

1. People aged 55 to 59: They are out of the labour force, have been with minimum jobless spell for at least three months, are not looking for work, are unavailable for work, do not expect to be called back and do not want to work.
2. People aged 60 and over: They are out of the labour force, with no minimum jobless spell, are not looking for work, are unavailable for work, do not expect to be called back and do not want to work.

Table 1 Proportion of all workers selected as retired, by reason of employment exit[1], 1998 to 2009

	Age group					
	50 and over	50 to 54[2]	55 to 59	60 to 64	65 to 69	70 and over
	percentage					
Economic conditions						
Both sexes	17	0	15	33	61	79
Men	15	0	10	27	54	73
Women	21	0	21	41	72	87
Health reasons						
Both sexes	47	0	53	83	95	99
Men	50	0	50	82	94	98
Women	44	0	56	85	96	100
Personal and family responsibilities						
Both sexes	37	0	44	77	94	94
Men	40	0	37	72	98	95
Women	36	0	46	79	91	92

1. Includes economic conditions, health reasons or personal and family responsibilities.
2. Since few people retire voluntarily before age 55, the number of involuntary retirements between 50 and 54 was set to 0.

Source: Statistics Canada, Labour Force Survey, 1997 to 2010.

Under these criteria (Table 1) and for the entire period, 15% of employment exits for economic reasons would lead to retirement for men, and 21% for women. The higher the age at which employment exits occur, the greater the number of retirements, especially for women.

2. For example, we tested various age ranges (55 and older; 58 and older; 55-to-59; 60- to-64; 65-to-69) and jobless spells (three months or more, six months or more). We selected only workers not looking for work so as to exclude the unemployed. Using a more restrictive scenario, for example in which the jobless spell was six months instead of three months, increased the expected working life marginally (by 0.2 to 0.4 years for men and by 0.4 to 0.5 years for women). However, the trends over time were the same no matter what criteria were used.

Selection criteria for non-voluntary retirements (continued)

Of all retirements resulting from economic conditions, about one-half are due to the end of a temporary job, one- third to layoffs and about one-fifth to the end of a casual job. The proportion of retirements resulting from layoffs varies little from year to year, which is why the proportions are shown as averages for the entire period.

Just under half of employment exits due to health were selected as retirements. The proportion increases with age and is similar for the two sexes.

About four in 10 employment exits due to personal and family responsibilities were selected as retirements. The more employment exits affect older workers, the more likely they are to be considered retirements. Similar proportions of men and women reporting this type of employment exit were selected as retirees.

Events likely to push people toward retirement

Using the LFS question that identifies retirements (see *Data sources, definitions and methods*), we can determine which employment exits are due to economic conditions, illness, disability and family responsibilities. However, the LFS questionnaire does not ask the questions that would show whether the people represented by those employment exits actually retired. We therefore must establish criteria under which workers would be prompted to retire permanently from the labour market after being affected by one of those events.

Table 2 Retirement types by sex, average proportions, 1997 to 2009

	Both sexes	Men	Women
	percentage		
Retirement type	100	100	100
Voluntary	77	79	74
Due to economic conditions	12	11	14
Due to health/disability	9	9	9
Due to family responsibilities	2	1	3

Source: Statistics Canada, Labour Force Survey, 1997 to 2009.

Voluntary retirements, not surprisingly, make up most (about three-quarters) of the retirements selected for the calculation of expected working life (Table 2). The criteria used to identify involuntary retirements were derived from studies on the subject (Chan and Stevens, 2002; Neil and Schirle, 2007; Finnie and Gray, 2011). According to some estimates, non-voluntary retirements constitute about 25% of all retirements in a year (Schellenberg and Ostrovsky, 2008), which is comparable to the proportion obtained in this study. Just over one retirement in 10 was due to economic conditions, 9% to deteriorating health, and 3% to personal and family responsibilities (for more details, see *Selection criteria for non-voluntary retirements*).

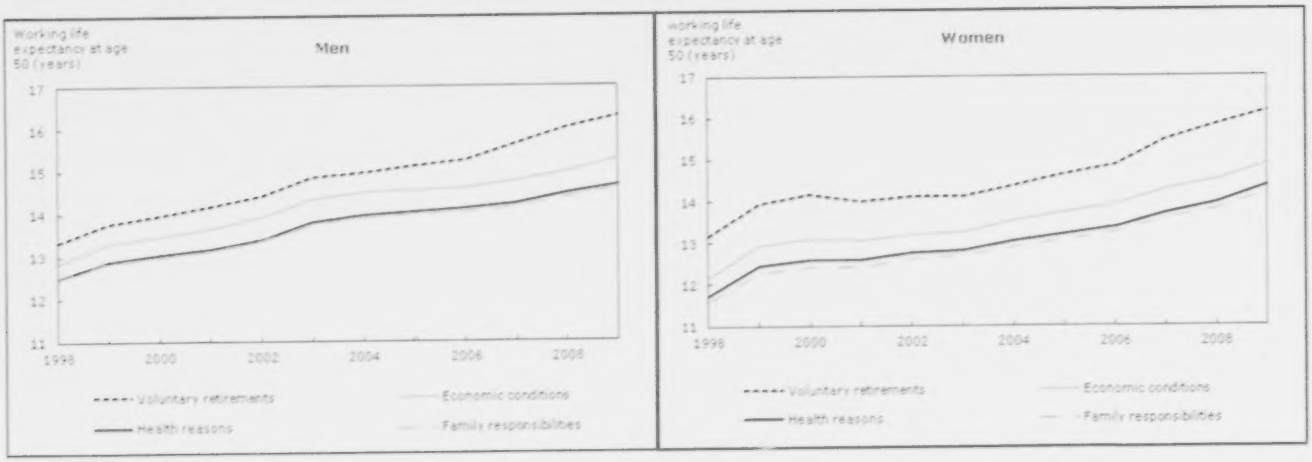
Economic conditions have a non-negligible impact on expected working life

It is generally accepted that older workers are less likely to lose their jobs (Bernard and Galarneau, 2009; Morissette, Zhang and Frenette, 2007). However, when older workers are laid off, they often take longer to find another job and, on average, suffer substantial, persistent loss of earnings (Chan and Stevens, 2001; Morissette et al., 2007; Brzozowski and Crossley, 2010).

Longer spells of unemployment, scarcer job opportunities, the high cost of looking for work, potentially more fragile health, being reasonably well-off and possibly age discrimination could cause some laid-off workers to retire permanently from the labour force. In addition, older workers often have qualifications that are specific to one employer or one industry; this may reduce their mobility and employment opportunities. Older workers are less likely than younger ones to take employment training (Park, 2012)[3] or go back to school to update their skills because of the short time they would have to recoup their investment.

3 Nevertheless, the proportion of older workers taking training is rising in the employed population as a whole. It is not clear, however, that training has increased among people who have been laid off.

Chart 1: Involuntary retirements may reduce expected working life by nearly two years



Source: Working-life tables based on Labour Force Survey data from 1997 to 2010.

The effect being laid off has on the decision to retire is generally unclear. Following such a shock, the earnings loss, break in pension contributions and loss of benefits (the income effect) could induce workers to remain in the labour market to offset those financial losses. However, the lower relative cost of leisure time because of earnings losses (the substitution effect) may encourage workers to retire early (Chan and Stevens, 1999; Brzozowski and Crossley, 2010).

In fact, laid-off workers retire at a significantly higher rate than non-laid-off workers with similar characteristics (Chan and Stevens, 2002; Neil and Schirle, 2007; Finnie and Gray, 2011). In other words, they appear to be retiring early. This effect seems to vary by age and sex: the older laid-off workers are, the more likely they are to retire. This age effect is even stronger among female workers[4].

Including involuntary employment exits (with voluntary retirements in our calculations) obviously reduces expected working life. If we consider only voluntary retirements, expected working life in 2009 is 16.3 years for men and 16.1 years for women. Adding employment exits due to economic conditions reduces it by 1.0 and 1.2 years respectively to 15.3 and 14.9 years (Chart 1). The impact tends to increase with time since, in 1998, economic conditions reduced expected working life by only 0.5 years for men and by 1.0 years for women.

The lesser effect of illness and disability

There is a consensus that poor health has a significant negative effect on the probability of remaining in the labour market (Campolieti, 2002; Han, Crossley and Schellhorn, 2005). Being in poor health apparently prompts workers to retire between one and two years earlier than people who are in very good health (Park, 2010). The same consensus holds in a number of countries, including Great Britain, Spain and Australia (Bruce, 2007).

Retirements for health reasons, as defined in this article, reduce expected working life by nearly half a year. If we then consider voluntary retirements and retirements due to economic conditions and health problems, expected working life would be 14.7 years for men and 14.3 years for women. Like retirements for economic reasons, health-related retirements are having an increasing effect on men. In 1998, the decrease for health reasons was just 0.3 years for men. For women, the effect is stable over the entire period.

Because of population aging, rising numbers of elderly people will lose the ability to live independently and will need home support services (Keefe et al., 2007). Seniors who can no longer live independently rely to a great extent on the informal network to meet their needs (Lafrenière, Carrière, Martel and Bélanger, 2003). In other words, loved ones provide much of the care required by their elders. Women are not the only ones affected by this situation, though more women than men serve as caregivers.

The growing needs of the elderly, combined with the rising participation rate of Canadians aged 50 and over, should increase the proportion of workers having to care for an elderly person. In 2007, one in five people aged 45 and over was in that situation (Vézina and Turcotte, 2008).

4 For example, according to the study by Finnie and Gray (2011), which examined the consequences of layoffs among older workers with a strong attachment to the labour market, in the year following the layoff nearly 13% of men and 15% of women aged 45 to 59 reported private pension benefits as their main source of income (that is, pension benefits made up at least 50% of their total income). At ages 60 to 64, 38% of men and 46% of women reported that their main source of income was private and public pension benefits combined. These proportions apply to a specific population; for the entire population of workers, who have a weaker attachment to the labour market, the proportion that are laid off and decide to retire may be higher. Using these empirical results, we established some criteria under which laid-off workers would be considered retired. For more details on these criteria, see Selection criteria for non-voluntary retirements.

Being a caregiver affects family life and work productivity and makes work-life balance more complicated (Duxbury, 2009). Some caregivers even have to quit their jobs. This reason was cited by 8% of retirees, according to the 2002 General Social Survey (Baldwin, 2011).

Including potential retirements due to family responsibilities has a marginal effect on expected working life, for both men and women. Such retirements reduced expected working life by just 0.1 years in 2009—comparable to the effect seen in 1998. However, the effect may become more pronounced in the future as population aging accelerates.

Thus, the overall effect of the factors prompting workers to retire apparently reduces potential expected working life by 1.7 years for men and by 1.9 years for women. For men, the effect of 'involuntary' retirements was twice as large in 2009 (1.7 years) as in 1998 (0.8 years). For women, the effect was fairly stable, rising from 1.6 years in 1998 to 1.9 years in 2009.

The delay in retirement since the mid-1990s, which was estimated at 3 years on the basis of voluntary retirements only, declines to 2.1 years for men and 2.6 years for women when the factors causing workers to take involuntary retirement are taken into account. Expected working life, when involuntary retirements are taken into account, increases from 12.5 years to 14.6 years for men and from 11.6 years to 14.2 years for women over the same period.

Retirement is delayed no matter what definition of retirement is used. For men, the gain in expected working life since 1998 is 22%, if we consider only 'voluntary' retirements, and 17% if we include involuntary retirements. For women, the estimated gain is 22% regardless of the definition used.

Greater impact on less educated workers

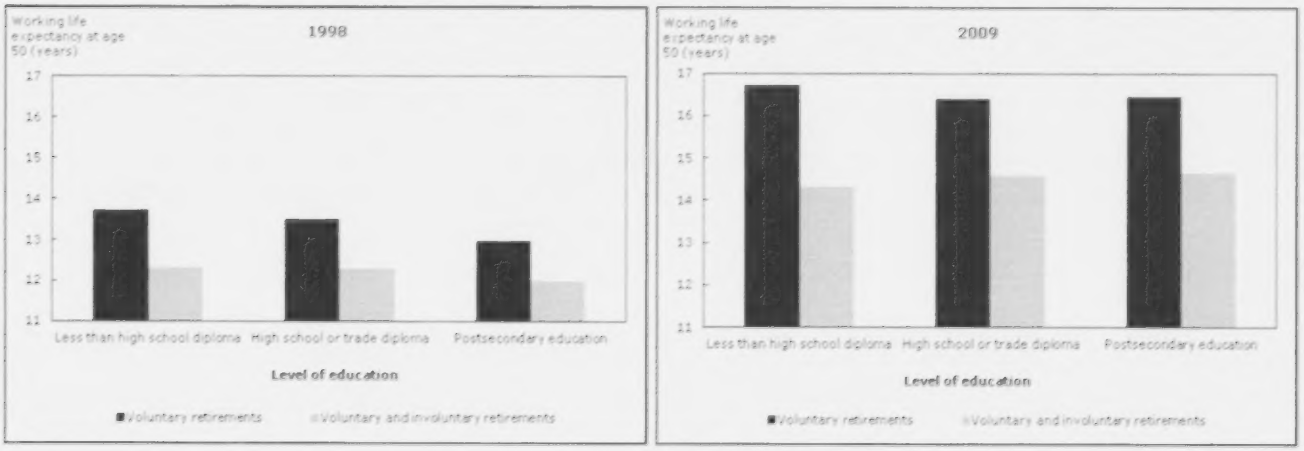
A number of factors suggest that less educated workers might be more likely to take involuntary retirement following a job loss due to economic conditions or poor health. Because of their lower educational attainment and, often, their lack of versatility, such workers are more likely than more highly educated workers to have a prolonged job search period (Dubé, 2004) and perhaps to have to conclude it because of their poorer job prospects. This effect may even be exacerbated in the current context of heavy competition, globalization and higher demand for skills.

On retirement, because their employment earnings were often lower, these workers are eligible for a somewhat higher level of replacement of their employment earnings from the public retirement income system (Old Age Security and the Canada or Quebec Pension Plan), which may be an additional incentive to retire (Larochelle-Côté, Myles and Picot, 2010).

To calculate expected working life by level of schooling, we first estimated the probabilities of death for each level of education based on the life tables produced by Wilkins et al. (2008). The latter were able to produce life tables by level of schooling using data from the Canadian census mortality follow-up study for the 1991-to-2006 period. We then allocated retirees and employment to each level of education to estimate the retirement rates. Because of the small number of retirements by year of age in the LFS, presenting gender-specific trends is impossible.

Whether we consider only voluntary retirements or all retirements combined, the "expected working life by level of schooling" indicator shows no clear trend. The only interesting observation is that the indicator has been rising since 1998 for all levels of schooling and all types of retirement (Chart 2).

Chart 2: The effect of factors encouraging workers to retire is slightly more pronounced among less educated workers



Source: Working-life tables based on Labour Force Survey data from 1997 to 2010 and estimated probabilities of dying by level of schooling based on data from the 1991 to 2006 Censuses (Wilkins et al., 2008)

In 2009, expected working life at age 50—when only voluntary retirements are considered—was just over 16 years for workers at all three levels of schooling. Workers who did not graduate from high school had a slightly longer expected working life, 16.7 years, compared with 16.4 years for workers who had a secondary or postsecondary diploma.

Involuntary retirements as defined here reduce the potential expected working life of workers at each level of schooling. However, the decrease is slightly larger for poorly educated people; their expected working life was 14.3 years, 14% or 2.4 years lower than the expected working life based on voluntary retirements only. More highly educated workers had an expected working life of 14.6 years, 11% or 1.8 years less than with voluntary retirements only.

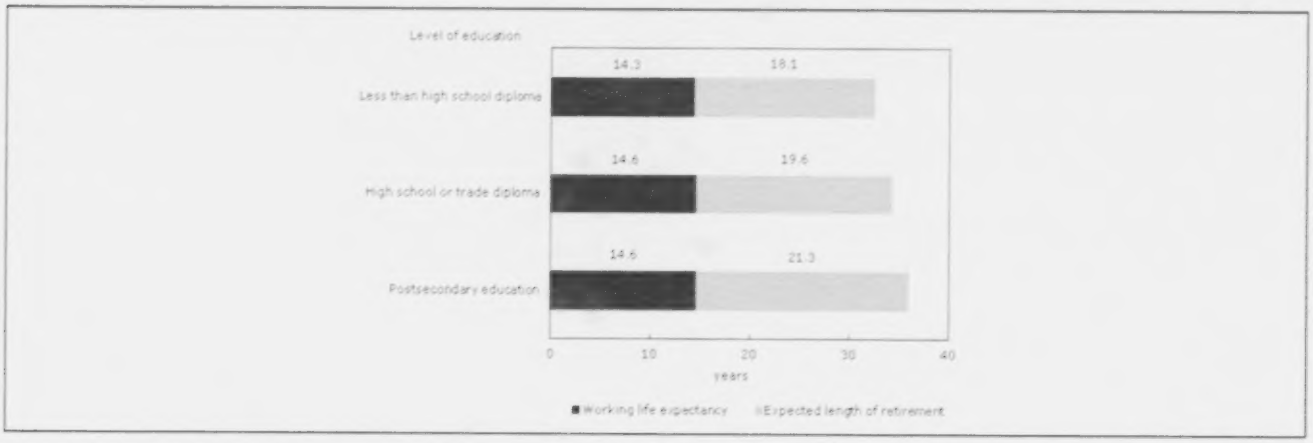
The effect of involuntary retirements has grown since 1998; at that time, they reduced potential expected working life by 8% to 10%. This recent intensification of the effect may be associated with the 2008 economic recession, which increased the number of layoffs and made re-employment less certain.

Shorter post-retirement life expectancy for less educated workers

Since less educated workers have a shorter life expectancy,[5] and since they have an expected working life comparable to more educated workers, they are also likely to have the shortest post-retirement life expectancy. If we consider only the voluntary retirement rates for 50-year-old workers in 2009, the least educated could indeed expect to live less time after retirement: 16 years, compared with 18 and 20 years for workers at the higher levels of schooling.

If we include involuntary retirements, we increase the post-retirement life expectancy. Once again, the least educated workers have a lower post-retirement life expectancy: 18 years, compared with 20 and 21 years for their more highly educated counterparts (C3).

Chart 3: Less educated workers can expect to have shorter lives and live fewer years after retirement than more highly educated workers, 2009



Source: Working-life tables based on Labour Force Survey data from 1997 to 2010 and estimated probabilities of dying by level of schooling based on data from the 1991 to 2006 Censuses (Wilkins et al., 2008).

When we express post-retirement life expectancy as a proportion of total life expectancy at age 50, the proportion of post-retirement years of life has declined for workers at all three levels of schooling since 1998, regardless of whether we consider only voluntary retirements or we include involuntary retirements. The decrease ranged from four to eight percentage points depending on the level of schooling, regardless of the retirement type used (data not shown).

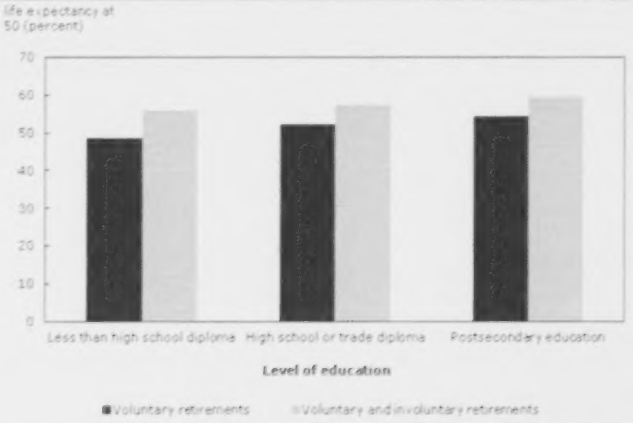
However, the decrease is not due to a decline in post-retirement life expectancy but to an increase in expected working life. The number of years one can expect to live after retirement has been relatively stable since 1998 for each level of schooling.

No matter which definition of retirement is used, less educated workers can expect to be retired for a smaller proportion of the years they have left at age 50 (Chart 4). If we consider only voluntary retirements in 2009, the difference between the levels of schooling is somewhat larger; the least educated workers can expect to spend 49% of their remaining years in retirement, compared with 52% and 54% for their more highly educated counterparts.

Workers who are pushed toward retirement exit the labour market earlier. As a result, their post-retirement life expectancy is higher. Poorly educated workers are more likely to take involuntary retirement, which further increases the proportion of the years remaining to them at age 50 that they will spend in retirement and thus reduces the difference between the levels of schooling. For example, in 2009 the proportion of years lived after retirement was 56% for the least educated workers, compared with 57% for people with a high school diploma and 59% for people with a postsecondary credential.

5 For example, in 2009 the estimated life expectancy at age 50 for both sexes combined was 32.5 years for people who did not graduate from secondary school, 34.2 years for people with a secondary school diploma, and 36.0 years for people with postsecondary education.

Chart 4 Post-retirement life expectancy as a proportion of total life expectancy at age 50 is slighly lower for the least educated workers, 2009



Source: Working-life tables based on Labour Force Survey data from 1997 to 2010 and estimated probabilities of dying by level of schooling based on data from the 1991 to 2006 Censuses (Wilkins et al., 2008).

Box: Small difference is counterintuitive

The small differences in expected working life between the levels of schooling may seem counterintuitive in view of the large differences in employment rates between the levels of schooling for people aged 50 to 70 (Table 3). Bear in mind that expected working life before retirement is an estimate that is conditional on a person having a job at age 50. The small differences between the levels of schooling mean that if they are employed, 50-year-old workers stay employed for a comparable number of years, regardless of their level of schooling.

Box: Small difference is counterintuitive (continued)

Table 3 Employment rate by age and level of education, age 50 and over, 1991 and 2009

	1991	2009
	percentage	
50 to 54		
Less than high school diploma	59.3	61.7
High school or trade diploma	74.5	78.4
Postsecondary education	82.5	83.6
55 to 59		
Less than high school diploma	49.0	51.6
High school or trade diploma	59.9	65.8
Postsecondary education	66.8	72.8
60 to 64		
Less than high school diploma	27.0	34.5
High school or trade diploma	35.6	47.4
Postsecondary education	44.1	52.4
65 to 69		
Less than high school diploma	8.5	13.6
High school or trade diploma	11.6	21.5
Postsecondary education	18.4	27.1
70 and over		
Less than high school diploma	3.1	3.0
High school or trade diploma	4.6	5.0
Postsecondary education	6.9	8.6

Source: Statistics Canada, Labour Force Survey, 1991 and 2009.

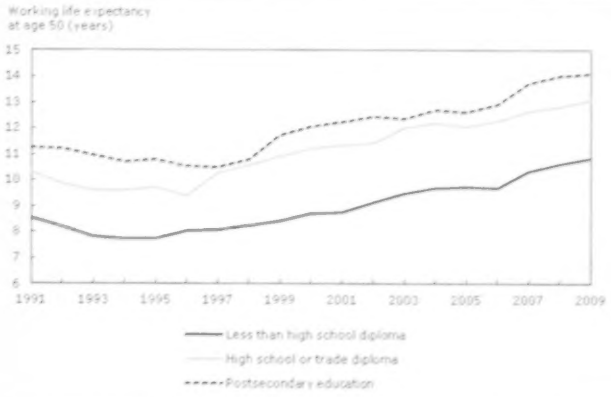
Box: Small difference is counterintuitive (continued)

However, the employment rate by level of schooling can be incorporated into the calculation of expected working life.[6] This is more or less the same as calculating the economic contribution of everyone aged 50 and over by level of schooling, not just that of people who are employed. For demonstration purposes, this indicator is calculated for voluntary retirements only.

There are substantial differences in employment rates between the levels of schooling for each age group after age 50. However, the differences tend to narrow as age increases. For example, for the 50-to-54 age group in 2009, the difference in employment rate between the lowest and highest levels of schooling was 22.2 percentage points; for the 65-to-69 age group, 13.5 percentage points; and for the 70-and-over group, 5.6 points.

When the differences in employment rate between levels of schooling are incorporated into the expected working life indicator, divergences emerge (Chart 5).

Chart 5: If we include employment rate by level of schooling, there are large differences in expected working life



Source: Working-life tables based on Labour Force Survey data from 1997 to 2010 and estimated probabilities of dying by level of schooling based on data from the 1991 to 2006 Censuses (Wilkins et al., 2008).

Poorly educated 50-year-old workers had the shortest expected working life: 10.8 years in 2009, compared with 13.0 for workers with a secondary school diploma and 14.0 years for those with a postsecondary credential.

The increase in expected working life since the mid-1990s remains significant for all three levels of schooling. Workers with the highest level of schooling showed the largest increase, 3.5 years, compared with 3.4 years and 3.1 years for workers at the two lower levels of schooling.

6 To estimate expected working life, we construct tables in which all 50-year-olds are deemed to be employed. We then reduce the number of 50-year-olds at each year of age by subtracting the number of retirees and deaths. To include the employment rate by level of schooling, we simply started the tables of 50-year-olds with identical counts and then multiplied them by the age-50 employment rate observed in a given year. Thus, the expected working life estimates are weighted, so to speak, by the differential employment rate between levels of schooling. The results represent more accurately the contributions of these different groups to the Canadian job market.

Alternative measure of retirement delay based on hours worked

The above results tell us that the number of years of employment increased by about three person-years, but that does not necessarily represent a gain of three years of full-time work. How much does this result change when the indicator is expressed in full-time equivalents (FTEs)?

To answer this question, we converted the expected working life into FTEs using the average hours worked by people aged 50 and over. We determined that one FTE was 40.5 hours per week, which was the average usual hours of work for full-time workers aged 15 and over in 2009.[7]

In this section, we compare the expected working life expressed in person-years and FTEs for all retirement types (voluntary and involuntary) in 1998 and 2009. Similar conclusions can be drawn from an analysis of voluntary retirements only. The main difference is that expected working life is longer when only voluntary retirements are considered.

This comparison leads to certain observations (Table 4). For example, expected working life in FTEs is shorter than expected working life in person-years for each level of schooling. This is because people aged 50 and over work fewer hours per week on average than the FTE benchmark of 40.5 hours. In 2009, the expected working life for workers at all levels of schooling was 14.5 person-years, compared with 12.9 FTEs.

Whether we express expected working life in person-years or FTEs, the delay in retirement is evident. It is slightly smaller when expressed in FTEs, but it is comparable for both measures for all three levels of schooling. For all levels of schooling combined, expected working life increased by 2.4 years (19%) between 1998 and 2009 and by 1.7 years (15%) when expressed in FTEs.

Tableau 4 Expected working life at age 50, in person-years and full-time equivalents (FTEs), by level of education, voluntary and involuntary retirements combined, 1998 and 2009

	Person-years	Full-time equivalents (FTEs)	Difference
	years		%
All levels of education			
1998	12.1	11.2	7.4
2009	14.5	12.9	10.6
Increase (%)	19.2	15.0	...
Less than high school diploma			
1998	12.3	11.7	4.8
2009	14.3	13.3	6.7
Increase (%)	16.0	13.6	...
High school or trade diploma			
1998	12.3	11.3	7.7
2009	14.6	13.1	9.9
Increase (%)	18.7	15.9	...
Postsecondary education			
1998	12.0	10.9	9.2
2009	14.6	12.8	12.6
Increase (%)	22.2	17.5	...

... not applicable

Sources: Statistics Canada, Expected working life tables based on Labour Force Survey data, 1997 to 2010; Estimated probabilities of death by level of education based on data from the 1991 to 2006 censuses; Wilkins et al., 2008.

The delay in retirement is slightly smaller when expressed in FTEs than when expressed in person-years. Nevertheless, the upward trend since the mid-1990s is real. This conclusion is valid for all three levels of schooling. Whichever measure is used (person-years or FTEs), the increase since 1998 has been larger for the most highly educated workers.

7 For the purposes of the exercise, we used usual hours of work because they do not fluctuate much over time. If we had used actual hours of work, which averaged 36.2 in 2009 for the population aged 15 and older, the number of full-time equivalents would have been higher, but the trends would have been the same.

Conclusion

Using the concept of expected working life, a recent article showed that retirement has been pushed back by three years since the mid-1990s. In 2009, a 50-year-old worker could expect to remain in the labour market for more than 16 years, compared with 13 years previously.

That article considered only people who reported in the LFS that they had retired. However, factors such as layoffs, illness, disability or having to care for a loved one may also lead to retirement, even if it is not reported as such in the LFS. In the present article, we attempted to measure, with certain assumptions, the effect that such involuntary retirements have on expected working life.

Taking involuntary retirements into account appears to have a significant impact since, in 2009, it reduced expected working life by 1.7 years for men and by 1.9 years for women. The expected working life of a 50-year-old man in 2009 declines from 16.3 years when only voluntary retirements are considered to 14.6 years when involuntary retirements are also included. For women, the corresponding figures are 16.1 years and 14.2 years.

Job losses for economic reasons account for about two-thirds of the decline, and illness and family responsibilities for about one-third. For men, the effect of job losses due to economic conditions on expected working life doubled between 1998 and 2009; for women, the effect remained stable. The effect for men may be attributable in part to the last recession. Job losses due to family responsibilities have only a marginal effect. However, that effect may increase in the future as a result of accelerated population aging.

Since less educated workers are often more vulnerable to involuntary retirement, we also examined the effect of such retirements by level of schooling. Involuntary retirements, as defined here, reduce the potential expected working life of workers at each level of schooling. However, the decrease is slightly larger for less educated people. The latter had an expected working life of 16.7 years if only voluntary retirements are considered, and 14.3 years if all retirement types are included. That is a decrease of 2.4 years, or 14%. By comparison, the decrease for more highly educated workers was 1.8 years, or 11%.

Having more education has a positive impact on more than just expected working life. There are substantial disparities in life expectancy between the three levels of schooling. Those differences are not without consequence for post-retirement life expectancy. A less-educated 50-year-old worker can expect to live, on average, at least three years less after retirement than a 50-year-old worker with postsecondary credentials. A decrease in the proportion of less-educated Canadians would therefore contribute to a greater delay in retirement while reducing the differences in post-retirement life expectancy.

Although there has been a decrease in average hours worked for all workers aged 50 and over, it has not significantly curbed the delayed retirement effect. Whether the delay is expressed in terms of person-years or full-time equivalents, the phenomenon of delayed retirement is indisputable for workers at all three levels of schooling.

The data show a substantial delay in retirement since the mid-1990s, regardless of level of education or retirement type. Since the rate of labour force growth will decline in the coming years (Martel et al., 2011), the retirement delay could reduce the impact that population aging is expected to have on the Canadian economy.[8] The arrival of more highly educated cohorts could contribute to higher employment rates at age 50 and eventually result in further increases in expected working life.

The results also reflect the impact that involuntary retirements have on the timing of retirement. The decline in expected working life due to economic conditions and worker health obviously has the opposite effect on post-retirement life expectancy. Involuntary retirement also means lower-than-expected retirement income, a lower standard of living and higher costs for income support programs. These results illustrate the role that both the health of the economy and the health of workers play in delayed retirement, itself an important engine of economic growth in the context of population aging.

8 The impact of delayed retirement on an aging society will be even more positive if the delay is voluntary. However, the reasons for delayed retirement are outside the scope of this analysis.

Box: Data sources, method and definitions

This article is based on the Labour Force Survey (LFS), which surveys approximately 54,000 households on a monthly basis. The LFS provides information on general labour market trends by industry and occupation, hours worked, participation rate and unemployment rate.

The LFS also provides information on the number of retirements per year. That information is used to compute retirement rates, which in turn are used to produce working-life tables. Those tables show the number of years that a 50-year-old Canadian can expect to continue working before retiring if he or she experiences the retirement and mortality rates observed in a given year.

This technique is similar to the one used to calculate life expectancy. One of its advantages is that it can identify worker retirement trends that are not affected by the age structure of the 50-and-over population (for more details concerning this technique, see Carrière and Galarneau, 2011; Denton, Feaver and Spencer, 2009; Bélanger and Larrivée, 1992).

The working-life tables are based on the population aged 50 to 80 because that is the age group in which most retirements take place. Since data for the Northwest Territories, Yukon and Nunavut have not been included, the findings of this study apply only to the 10 provinces.

Retirements

The number of retirements in a given month or year is derived from the question on the reasons for stopping work, as one of its responses is "retired". That question is asked if the respondent is not working at the time of the survey but has worked in the preceding 12 months.[9] Retirements are recorded only for people aged 50 and over.

Retirements identified using the LFS are not necessarily full retirements, first retirements or career job retirements. The LFS records retirement as reported and perceived by the respondent at the time of the survey. As a cross-sectional survey, the LFS cannot identify the multiple states between first retirement and full retirement.

Expected working life by level of schooling

To construct working-life tables by level of schooling, we first had to estimate life tables for each level of schooling. For that purpose, we used the probabilities of dying estimated by Wilkins et al. (2008) on the basis of the Canadian census mortality follow-up study for the 1991-to-2006 period. At that time, we used the following levels of schooling: no secondary school diploma, secondary school diploma (or trade school certificate), postsecondary certificate or diploma (below the bachelor level), and university degree (bachelor's, master's or doctoral degree). For reasons of sample size, we collapsed these levels of schooling into three groups: "Less than a secondary school diploma," "Secondary school diploma or trades certificate" and "Partial or complete postsecondary studies, university or non-university."

Using the probabilities of mortality observed between 1991 and 2006 for the three levels of schooling, we calculated ratios of probabilities of mortality relative to the probability for the entire population, by year of age and sex. The ratios were then multiplied by the annual probabilities of mortality used to construct the Canadian Human Mortality Database life tables for the 1991-to-2007 period. For 2008 and 2009, we multiplied the probabilities of mortality by the probabilities used in Statistics Canada's population projections. The ratios were kept constant for the entire period from 1991 to 2009, the period covered by this study. This constant-ratio assumption has the effect of reducing the differential life expectancy between levels of schooling somewhat over time.

Then we calculated the tables of expected working life and post-retirement life expectancy using the year-of-age retirement rates observed in the LFS for each level of schooling.

9. Before 1997, this question was not asked if the respondent was on temporary layoff, but it has been since then.

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